REMARKS

The Examiner is thanked for the performance of a thorough search. By this response, Claims 23 and 24 have been amended. No claims have been added or canceled. Claims 12 and 13 have been allowed. Hence, Claims 1–11, 23–25, 27–32 and 34–48 are pending in this application.

All issues raised in the Office Action are addressed hereinafter.

I. ALLOWED CLAIMS

The Examiner is thanked for indicating the allowability of independent Claim 12 and its dependent Claim 13. In addition to Claims 12 and 13, Claims 1–11, 23–25, 27–32 and 34–48 are also allowable for the reasons discussed below.

II. CLAIM REJECTIONS BASED ON 35 U.S.C. § 101

Claims 23-24, 27-32, and 40-48 are rejected under 35 U.S.C. § 101 as allegedly directed to non-statutory subject matter. The rejection is respectfully traversed.

With respect to Claim 23, the Office alleges that the claim is "directed to a computer readable medium that includes data signals," per ¶ [0064] of Applicants' specification. Claim 23 is presently amended to recite that a computer-readable storage medium **storing** (as opposed to carrying) instructions. Claim 23 is not directed towards data signals, because data signals are incapable of storage. Data signals do not possess the claimed feature of "storing" and do not serve as a "storage medium." The rejection as to Claim 23 is therefore overcome.

With respect to Claim 24, the Office alleges that the claim is directed to software "without any structural component." Claim 24, as amended, is presently directed towards at least the following structural components: "a network interface that is coupled to a data network for receiving one or more packet flows therefrom;" and "one or more processors." The rejection as to Claim 24 is therefore overcome.

For at least the above reasons, Claims 23 and 24 are directed towards statutory subject matter under 35 U.S.C. § 101. Furthermore, each of Claims 27–32 and 40–48 depends from

Claim 23 or 24, and is directed towards statutory subject matter under 35 U.S.C. § 101 for at least the same reasons as its parent claim. Applicants respectfully request removal of the rejection.

III. CLAIM REJECTIONS BASED ON 35 U.S.C. § 103

A. Sharma and Beser

Claims 1, 3, 6–8, 10–13, 23–25, 27, 30–32, 34, and 37–39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,754,716 (hereinafter *Sharma*) in view of U.S. Patent No. 6,170,061 to Beser, et al. (hereinafter *Beser*). Applicants traverse the rejection. Reconsideration is respectfully requested.

Among other elements, Claim 1 presently recites:

> wherein determining that the particular subsystem is authorized comprises determining that the particular subsystem is a Dynamic Host Configuration Protocol (DHCP) server, an Authentication, Authorization, Accounting (AAA) server or a Network Address Translator (NAT);
>
> only if the particular subsystem is authorized, then updating the ARP table based on the instruction.

As the Office Action acknowledges, Sharma fails to teach the above-quotes elements of Claim 1. Rather, the Office Action alleges that *Beser* teaches the above-quote elements in FIG. 7B, step 150, and FIG. 11B, steps 202–208. The Office Action is mistaken.

For the Office's convenience, the entire text of the relied upon steps of *Beser* is reproduced below.

> 150: CMTS receives one or more DHCP Offer messages from one or more network host interfaces via DHCP servers
>
> 202: A selected DHCP server recognizes its identifier and the IP address of an associated network host interface

204: The selected DHCP server creates and sends a DHCP ACK message to the CMTS

206: The CMTS receives the DHCP ACK message from the selected DHCP server

208: CMTS updates an internal ARP table with the IP address of the network interface host and the MAC address of the CM

The relied upon steps of *Beser* teach, in essence, that a Cable Modem Termination System ("CMTS") relays DHCP messages between a DHCP Server and Cable Modem ("CM"). The CMTS may intercept certain DHCP messages and perform actions based on the contents of those messages. For instance, the CMTS may intercept a DHCP ACK message and update its ARP table based on the contents of that message. *See generally Beser* at cols. 18–23.

There is no hint, either explicit or implicit, that any of the CM, CMTS, or DHCP Server performs a step of "**determining that the particular subsystem is authorized**." It is therefore impossible for *Beser* to have taught one skilled in the art that "determining that the particular subsystem is authorized **comprises** determining that the particular subsystem is a Dynamic Host Configuration Protocol (DHCP) server, an Authentication, Authorization, Accounting (AAA) server or a Network Address Translator (NAT)," as recited in Claim 1.

Nor does *Beser* teach that any of the CM, CMTS, or DHCP Server performs a step of "**determining that the particular subsystem is a Dynamic Host Configuration Protocol (DHCP) server, an Authentication, Authorization, Accounting (AAA) server or a Network Address Translator (NAT)**." If the Office Action is alleging that the CMTS must implicitly determine whether or not the DHCP Server is a DHCP Server, the Office Action is in error. There is no basis for the assumption that the CMTS would need to determine the type of system from which it had received the DHCP ACK.

Furthermore, *Beser* does not teach updating an ARP table "**only if the particular subsystem is authorized**." This is true for at least the reason that the CMTS does not perform

an authorization determination when updating the ARP table. Rather, the CM **always** updates its ARP table in response to the DHCP ACK message. *See Beser* at col. 22, line 46–col. 23, line 6.

Fundamentally, *Beser* does not control updates to the ARP table based upon what kind of subsystem is sending an update. The reference to DHCP in *Beser* is unrelated to controlling whether ARP table updates are performed.

For at least the foregoing reasons, the combination of *Sharma* and *Beser* fails to teach or suggest at least one feature of independent Claim 1. Therefore, the combination of *Sharma* and *Beser* does not render Claim 1 obvious under 35 U.S.C. § 103. Reconsideration is respectfully requested.

INDEPENDENT CLAIMS 23–25

Independent Claims 23–25 also recite features argued above with relation to Claim 1, although Claims 23–25 are expressed in other formats. Because Claims 23–25 have at least one of the features described above for Claim 1, Claims 23–25 are therefore allowable over the combination of *Sharma* and *Beser* for at least one of the same reasons as given above for Claim 1. Reconsideration is respectfully requested.

CLAIMS 3, 6–8, 10–11, 27, 30–32, 34, AND 37–39

Each of Claims 3, 6–8, 10–11, 27, 30–32, 34, and 37–39 depends from one of Claims 1, 23, 24, or 25, and includes the above-quoted features of its parent claim by dependency. Thus, the combination of *Sharma* and *Beser* also fails to teach or suggest at least one feature found in Claims 3, 6–8, 10–11, 13, 27, 30–32, 34, and 37–39. Therefore, the combination of *Sharma* and *Beser* does not render obvious Claims 3, 6–8, 10–11, 13, 27, 30–32, 34, and 37–39. Reconsideration of the rejection is respectfully requested.

In addition, each of Claims 3, 6–8, 10–11, 13, 27, 30–32, 34, and 37–39 recites at least one feature that independently renders it patentable. For example, **Claim 7** recites:

> **if the particular subsystem is not authorized**, then performing
>
> the steps of:

determining **whether a particular network interface through which the instruction was received is contained in a set of one or more specified network interfaces**

The Office Action alleges that *Sharma* teaches such a step in *Sharma* at col. 5, line 44–col. 6, line 10 and FIG. 5, step 502. The Office Action is mistaken. *Sharma* teaches that a Host S may receive an instruction to "transmit a packet" to target computer T. *Sharma* at col. 5, lines 44–45. Prior to transmitting the packet, Host S may determine if S is itself authorized "to request L2 addresses." *Sharma* at col. 5, line 53–56. If it is not, S "discards the request, and terminates 406, **taking no further action.**" *Sharma* at col. 5, lines 59–60. Thus, not only do the steps of *Sharma* at col. 5, lines 44–65 have nothing to do with "an instruction to update an ARP table," *Sharma* **explicitly teaches against tacking any action in response to determining that the system is not authorized**. Likewise, target computer T behaves in exactly the same fashion when receiving the packet from S. *See Sharma* at col. 6, lines 5–7.

Moreover, in *Sharma*, step 502, *Sharma* discloses determining if a device is authorized. **If a device is not authorized**, *Sharma* explicitly states, in step 504, that the **ARP request is discarded**. Clearly, then, *Sharma* does not teach "determining whether a particular network interface through which the instruction was received is contained in a set of one or more specified network interfaces" if the device is not authorized.

As another example, **Claim 8** recites:

if the particular subsystem is not authorized, then performing the steps of:

determining **whether a particular network address** indicated by the instruction **is contained in a set of one or more specified network addresses**;

The Office Action again alleges that *Sharma* teaches such a step in *Sharma* at col. 5, line 44–col. 6, line 10 and FIG. 5, step 502. The Office Action is again mistaken, for at least the reasons discussed above with respect to Claim 7.

As another example, **Claim 10** recites that "the ARP table is updated **only in response to instructions that are not ARP messages**." *Sharma* does not contemplate ignoring all ARP messages. In fact, *Sharma* appears to contemplate that ARP updates occur only in response to ARP messages. The Office Action alleges that *Sharma* discloses this feature in col. 3, lines 6–34. However, this passage of Sharma discloses that, while some ARP messages may indeed be ignored, authorized ARP messages are still used to update the ARP table. Thus, *Sharma* does not disclose that "the ARP table is updated only in response to instructions that are not ARP messages."

To expedite prosecution in light of the fundamental differences already identified, further arguments for each independently patentable feature of Claims 3, 6–8, 10–11, 13, 27, 30–32, 34, and 37–39 are not provided at this time. Applicants reserve the right to further point out the differences between the cited art and the novel features recited in the dependent claims.

B. Sharma, Beser, and Wilson.

Claims 4-5, 28-29, 35-36, 41–42 and 46 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Sharma* in view of *Beser* and *Wilson*. Applicants traverse the rejection. Reconsideration is respectfully requested.

Each of Claims 4–5, 28–29, 35–36, 41–42, and 46 depends from one of Claims 1, 23, 24, or 25, and includes the above-quoted features of its parent claim by dependency. Thus, the combination of *Sharma*, *Beser*, and Wilson also fails to teach or suggest at least one feature found in Claims 4–5, 28–29, 35–36, 41–42, and 46. Therefore, the combination of *Sharma*, *Beser*, and *Wilson* does not render obvious Claims 4–5, 28–29, 35–36, 41–42, and 46. Reconsideration of the rejection is respectfully requested.

In addition, each of Claims 4–5, 28–29, 35–36, 41–42, and 46 recites at least one feature that independently renders it patentable. However, to expedite prosecution in light of the fundamental differences already identified, further arguments for each independently patentable feature of Claims 4–5, 28–29, 35–36, 41–42, and 46 are not provided at this time. Applicants reserve the right to further point out the differences between the cited art and the novel features recited in the dependent claims.

C. Sharma, Beser, and Massarani.

Claims 9 and 46 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Sharma* in view of *Beser* and in further view of U.S. Patent No. 6,393,484 B1 to Massarani, et al. (hereinafter *Massarani*). Applicants traverse the rejection. Reconsideration is respectfully requested.

Each of Claims 9 and 46 depends from one of Claims 1 or 23 and includes the above-quoted features of its parent claim by dependency. Thus, the combination of *Sharma*, *Beser*, and *Massarani* also fails to teach or suggest at least one feature found in Claims 9 and 46. Therefore, the combination of *Sharma*, *Beser*, and *Massarani* does not render obvious Claims 9 and 46. Reconsideration of the rejection is respectfully requested.

In addition, each of Claims 9 and 46 recites at least one feature that independently renders it patentable. However, to expedite prosecution in light of the fundamental differences already identified, further arguments for each independently patentable feature of Claims 9 and 46 are not provided at this time. Applicants reserve the right to further point out the differences between the cited art and the novel features recited in the dependent claims.

III. CONCLUSION

For the reasons set forth above, all of the pending claims are now in condition for allowance. The Examiner is respectfully requested to contact the undersigned by telephone relating to any issue that would advance examination of the present application.

A petition for extension of time, to the extent necessary to make this reply timely filed, is hereby made. If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to charge any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,

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